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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/040,535

12/28/2001

Nigel J. Tolson

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04/08/2004

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EXAMINER

CHOW, CHARLES CHIANG

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 04/08/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,535

Applicant(s)

TOLSON, NIGEL J.

Examiner

Charles Chow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-7 is/are rejected.
- 7) ☒ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because: There is no applicant's signature in the oath or declaration.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claim 3, the phrase "second passive twin-T section" renders the claim(s) indefinite because the claim include elements not actually disclosed (the last four words of claim 3 has the "second passive twin-T section" which is not specified anywhere earlier in claim 3), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al. (US 2003/0087,622 A1) in view of West (US 3,577,179).

Regarding **claim 1**, Jayaraman et al. (Jayaraman) teaches a filter circuit apparatus (410c, selectable filter 3, for removing upper and lower adjacent channel interference ACI Fig. 4)

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for suppression of spurious signals (adjacent channel interference ACI, abstract, [0011-0014]) in a super heterodyne circuit (quadrature demodulation 226, Fig. 2, [0027]) for receiving communication channels (CDMA channels, [0023-0026]). Jayaraman does not clearly teach the first active twin-T filter in a first signal path. However West teaches a first active twin-t filter (stage 50, twin-T 12, amplifier 28, second filter stage, Fig. 1) in a first path defining a first sharp notch at the center of a second channel (notch response curve for stage 2 in Fig. 2), and a first passive twin-T section (twin-T 12 in stage 60, Fig. 1) coupled to receive output of the first active twin-T filter (output of stage 50, 30, 14, Fig.1), defining a second sharp notch at the center of a next channel (60, stage 3 notch response curve in Fig. 2) to suppress spurious signals. West teaches an improved filtering technique to reduce the signal distortion with sharp rate of attenuation of the unwanted signals (col. 1, lines 10-12, col. 1, lines 38-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jayaraman, and to include West's active twin-T followed by passive twin-T filters, such that the unwanted signals could be sharply attenuated by utilizing the active twin-T followed by the passive twin-T filters.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman in view of West, and further in view of Anderson (US 3,579,135).

Regarding **claim 5**, Jayaraman and West do not teach the active bootstrap configuration, topology, of the active twin-T filter. Anderson teaches a twin-t notch filter (Fig. 1-6, abstract, col. 1, lines 5-53). Anderson teaches the active bootstrapping topology configuration of the active twin-T filter, to sharpen up the filtering response curve (col. 4, line 5-20). Anderson

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teaches the improved stable active notch filtering network as shown in Fig. 2, with accuracy and efficiency for without tuning, for rejecting adjacent frequencies (col. 1, lines 11-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jayaraman above, and to include Anderson's active bootstrapping twin-T filter, such that the active notch filter could accurately reject the adjacent frequencies.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman in view of Chew (US 5,107,491).

Regarding **claim 6**, Jayaraman teaches a method for processing multiple signal modes to different radio standards of a received RF signal (the CDMA, TDMA, FDMA, W-CDMA standards [0004-0005]), comprising performing down conversion of the received RF signal to produce analog I, Q signals (receiver unit 200 with quadrature downconverter/demodulator 226, Fig. 2, [0027]), for each of the analog I, Q signal, filtering out the unwanted signals (adjacent channel interference ACI using selectable filter 242). Jayaraman teaches a first standard (CDMA standard) processing the analog signal using a first passive notch filter (410a, Fig. 4) to produce a first filtered signal.

Jayaraman does not clearly teach a second standard processing the analog signal using an active notch filter to produce a second filtered signal. However, Chew teaches the active notch filter (Fig. 3, 14 in Fig. 1) for processing analog signal in a second standard (the Ethernet LAN of the Manchester data in col. 1, lines 10-39). Chew teaches the improved notch filter for better attenuation of the undesired signal (col. 1, line 40 to col. 2, line 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of

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invention to modify Jayaraman, and to include Chew's active twin-T filter, such that the notch attenuation of the undesired signal could be improved with higher attenuation.

Regarding the active not filter exhibits smaller group delay than the passive notch filter, it is well known in the technology (as cited in applicant specification page 4 [18]) that it is because of the slope of the active notch filter is steeper, therefore, the group delay of the active filter is less than the group delay of the passive notch filter.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman in view of Chew, and further in view of West-'179.

Regarding **claim 7**, West taught above the second filtered signal from stage 50, which is further processed by the passive notch filter 12 of the stage 60 or stage 3 (Fig. 1), for the second standard seismic signal (col. 1, lines 4-12). West teaches an improved filtering technique to reduce the signal distortion with sharp rate of attenuation of the unwanted signals (col. 1, lines 10-12, col. 1, lines 38-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jayaraman above, and to include West's further passive twin-T filter stage, such that the unwanted signals could be sharply attenuated by further utilizing the additional passive twin-T filter stage 3.

Claims Objection

7. Claims 2-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim

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and any intervening claims. The prior art does not teach the apparatus further including a second active, passive twin-T filter sections, the third, fourth active twin-T filters, the third, fourth passive twin-T filter having cross coupled feature.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. US 2002/0168,956 A1, January 2002, Murtojarvi teaches the switchable notch band stop filter 10 attenuating undesired signal in the in phase and quadrature phase signal paths (Fig. 5) having active twin-T filter 8 followed by passive twin-T filter 10 (Fig. 7).

B. US 2002/0000,874 A1, January 2000, Thomasson teaches the adjacent channel interference rejection (Fig. 6) by cascading notch filter 43, 44 (Fig. 3-4).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)-305-4385.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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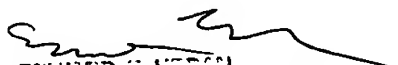
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow C,C .

March 30, 2004.


EDWARD J. URBAN
SUPERVISOR, PATENT EXAMINER
TECHNICAL STAFF, 1993